Title: Rabindranath Tagore's Engagement with Science

Name of scholar: Madhumita Roy

Supervisor: Professor Amrit Sen

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The Bengal Renaissance ushered in the cult of rationality, scientific education and temperament, thereby, resulting in an appropriation of the Western science by the indigenous elite in the colonial India. Intellectuals like Rammohun Roy, Akshay Kumar Dutta, Ishwar Chandra Vidyasagar and others responded in their own way to the emerging discourses of science and modernity in Bengal. Rabindranath was not indifferent to such discourses and assumed a significant role in moulding the discourse of science and rationality in terms of a poet/philosopher's perception. This thesis intends to explore the multiplicities embedded in the poet's response towards science in his miscellaneous creations.

Rabindranath's perception of science differs from that of a nationalist or a scientist. In *The Religion of Man*, the poet clearly asserts his position: "my religion is a poet's religion" (87). Probably, it is for this reason that he voices the impossibility of the co-existence of science and poetry. Written in 1914, his essay "Aamar Jagat" dramatises the conflict between a poet and a scientist. In fact, the seeds of the later Tagore-Einstein debate are strewn here.

The Upanishadic philosophy, which he inherited from his father, undergoes a subsequent transformation in the poet's thoughts. Rabindranath never chooses to reject the world as "*maya*". Rather, his mind operates in eradicating the demarcation between the living and the non-living, the finite and the infinite, the individual and the universe. Thus, the finite, tangible realm of science finds its expression in the Infinite in the poet's imagination: "it must be admitted that even the impersonal aspect of truth dealt with by Science belongs to the human Universe" (*The Religion* 7). Science is, thus, perceived as a significant gateway to the greater truth to be achieved by the humanity.

In his letters to J.C. Bose, Tagore appreciates his experiments demonstrating similar sensation in plants as well as metallic bodies. This reveals a striking connection between the poet and the scientist, both arriving at the same reality, although following different trajectories. What the scientist aims to prove by experimentation, the poet comprehends by his sensitivity, and an all encompassing love for all resulting in a consequent expansion of the horizon of selfhood. The idea of nationalism begins to appear before him as a restrictive domain that is replaced by him with a greater patriotism. The nineteenth century nationalist endeavour to employ science as a tool for constructing a national identity suffers a dilemma. Thus, Rabindranath builds up his own perception of science with his in-built critique of the Western exploitation of science to acquire wealth and power, as well as, the indigenous appropriation of the Western science to challenge the West. Denying both, the poet finds in science a repository of the greater truth. As a consequence, in Tagore, we find a constant spiritual reworking upon the various discourses, which are usually associated with the larger discourse of science.

Rabindranath's insistence on realising science in a broader spiritual domain finds an expression in his much later endeavour *Biswaparichay* (1937). *Biswaparichay* was conceived with the sole purpose to popularise science. Aiming at a larger dissemination of scientific outlook, Rabindranath initially entrusted Pramathanath Sengupta with the project of writing a preliminary book on science. The poet's insistence on the simplicity and clarity of language, apt arrangement of data and the least use of scientific terminologies clearly depict the target readership. Finally, Pramathanath took the responsibility of supplying scientific facts while *Biswaparichay* took its shape. My thesis will explore *Biswaparichay* as a text that embodies the poet's philosophy of creation.

What follows from the above discussion is that Rabindranath upholds science as the suitable way to liberate mankind from the narrow confines of selfhood. He was however disappointed with the actual praxis of science fostering inequality. Where science is exploited to establish power, acquire wealth and restrict human freedom, the poet senses a deeper conflict between science and human nature. This conflict is well articulated in a number of his works. *The Waterfall* manifests an engineer's [Bibhuti] attempt to restrict the free flowing nature of a waterfall by exploiting the power of machine. The play incorporates a song sung in the praise of the machine, which strongly confirms the destructive spirit of technology, especially when it is divorced from the general concerns of humanity. The machine with its ability to melt iron, crush rocks, evokes terror in every observer. As opposed to Bibhuti and his machine, Rabindranath places Abhijit as the epitome of humanity. The play celebrates the triumph of humanity over the power of technology. Thus, the waterfall regains its freedom at the cost of Abhijit's life. Through death, man's ultimate freedom is portrayed. A similar tussle is dramatized in *Raktakarabi* where Nandini speaks on behalf of the repressed humanity in the claustrophobic space of the gold mine. The very process of ruthless exploitation of the mother earth's treasure is critiqued here. My thesis will look into his travelogues and two symbolic plays where Rabindranath brings in his critique of the Western use of technology as a tool of imperialism and exploitation.

Rabindranath's implementation of science and technology finds expression in his *Brahmavidyalaya* at Santiniketan and his project of rural reconstruction at Sriniketan. The poet's philosophy of realising the self within the other was the predominant impetus behind the design of his *Brahmavidyalaya*. Rabindranath truly understands the intense proximity between the animate and the inanimate world, and more significantly, between the human and the plant kingdom. Such a perception characterises his pursuit of the ideal of *tapoban* at Santiniketan.

Rabindranath had a keen desire to establish a laboratory and a technical department at Santiniketan. The poet's inclination to introduce demonstrations and experimentations is articulated in his essay, "A Poet's School" where the poet states: "The first important lesson for children in such a place would be that of improvisation … I must make it plain that it implies a lesson not in simple life, but in creative life" (12). Thus, scientific knowledge is to be attained through a subjective creativity. Rabindranath's insistence to implant scientific outlook in young minds was spontaneously executed by Jagadananda Roy. The institution becomes a breeding ground of astrological science, meteorology, botanical sciences, and nature studies. Santiniketan imbibes Rabindranath's quest for the greater 'I' and seeks to implant a similar quest in his students. In the process, science is again evaluated as a gateway to the spiritual truth.

Rabindranath's humanistic approach towards the incorporation of science and technology is depicted in his project of rural reconstruction too. This project was directed towards the

propagation of self-reliance among the villagers. Rabindranath's Sriniketan [the abode of prosperity] also succeeds to bring in both the East and the West together. In his *Santiniketan Diary*, Leonard Elmhirst, one of the leading workers in the project, portrays his co-ordination with Santosh Majumdar, Dhirananda Roy, Kalimohan Ghosh, Patrick Geddes, C.F.Andrews, and Pearson which, in a way, distinguishes Rabindranath's project from the numerous nationalist's endeavours prevalent then. Unlike the nationalists of his time, Tagore did not hesitate to welcome people from the West. Thus, in 1922, the "Anti Malaria Society" was founded in Sriniketan under the collective efforts of Kalimohan Ghosh, Dr. Gopal Chattopadhyay and Gretchen Green, a paramedic-cum-nurse sent by the Quaker Society of U.S.A. A few years later, Harry Timbres and his wife Rebecca also arrived and enlisted their names in Rabindranath's project. The nationalist's call for non co-operation and a subsequent creation of a separate, indigenous nook is, therefore, undercut by Rabindranath's Sriniketan. The place also offers a corrective to the western use of science and technology that ultimately results in the exploitation of nature. Rabindranath's use of science and technology in Sriniketan confirms his love, concern and fellow feeling for the villagers. Thus, Tagore seeks to employ technology for the improvement of agriculture, rural health, education and even the agrarian economy.

The thesis will thus seek to trace Rabindranath's myriad responses to science in his fictional and non-fictional writings and in his concept of education and the universality. The first chapter will use the theoretical frameworks of nationalism to trace the development of Indian science in the nineteenth century and its use in a nationalist project. The second chapter will dwell on Rabindranath's unique approach to nature and scientific finding and the interrelationships between spirituality and science. The third chapter will investigate Rabindranath's critique of modern science as a tool of empire and exploitation. The fourth chapter will investigate the poet's use of science in his institutions of Santiniketan and Sriniketan to integrate science within the pedagogic process and its praxis. Within my thesis I will use poems (*Bonobani*), plays (*Prakritir Pratisodh*, *Muktadhara*, *Raktakarabi*), short stories ("Laboratory", "Rabibar", "Seshkatha"), non-fictional writings, travel writings, letters and conversations to explore Rabindranath's negotiation with the discourse of science.

Notes:

1. "He moves and remains still; He is far and near—
Both are equally true. There is faith in fragments and in whole ." [Translation is mine].
2. Translation is mine.
3. Translation is mine.

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